UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/530,410	04/07/2005	Nobuki Kitano	DK-US055065	5775

22919 7590 08/06/2008

GLOBAL IP COUNSELORS, LLP
1233 20TH STREET, NW, SUITE 700
WASHINGTON, DC 20036-2680

EXAMINER	
GLASS, ERICK DAVID	

ART UNIT	PAPER NUMBER
2837	

MAIL DATE	DELIVERY MODE
08/06/2008	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/530,410	KITANO, NOBUKI	
	Examiner	Art Unit	
	Erick Glass	2837	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-28* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☒ Claim(s) *8,20,27 and 28* is/are allowed.

6)☒ Claim(s) *2-4,7,9-12,14-16,19 and 21-23,25,26* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 2, 4, 7, 9, 14, 19, 21, 23, rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. Nowhere in the specification can it be found, "varying motor output torque periodically".

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 2-4, 7, 9-12, 14-16, 19, 21-23, 25, and 26 are rejected under 35 U.S.C. 103(1) as being unpatentable over Hirono et al (6,646,411) in view of Ochiai et al (US 6,422,331).

With respect to claim 2, Hirono et al discloses detecting (fig. 1, 29) at least one of an output voltage value and a voltage command value of the inverter as a detection value (column 1, lines 40-52), and controlling (fig. 1, 24) at least one of voltage and

current of the inverter suppress rotational speed variations of the motor (column 3, lines 15-55) based upon the detection value so that one of the output voltage value and the command value of the inverter does not exceed a predetermined value (column 1, lines 57-58), taking precedence over suppression of the rotational speed variation (fig. 2a, s6).

Hirono does not specifically speak of the torque values. Ochiai teaches varying motor output torque periodically (column 3, lines 18-26). It is commonly known by one having ordinary skill in the art at the time of the invention that the output torque will vary along with the output current. The prior art elements of the torque varying is commonly well known in the area of motor control as the torque is directly proportional to the current, and therefore yield predictable results.

With respect to claim 3, Hirono et al discloses the detection value is a peak value (column 8, line 36) of one of the output voltage value of the inverter and the command value.

With respect to claim 4, Hirono discloses decreasing an amplitude of an output torque variation of the motor, and controlling at least one of voltage and current of the inverter so that at least one of the output voltage value and the command value of the inverter suppress rotational speed variations of the motor (column 3, lines 15-55) does not exceed a predetermined value.

With respect to claim 4, Ochiai et al discloses decreasing an amplitude of an output torque (column 3, lines 18-26) variation of the motor (fig. 1, 2), and controlling at least one of voltage and current of the inverter (fig. 1, 7) so that at least one of the

output voltage value and the command value of the inverter suppress rotational speed variations of the motor does not exceed a predetermined value (column 2, lines 5-12). Hirono et al does not teach the inverter varying output torque. Hirono does not specifically speak of the torque values. Ochiai teaches varying motor output torque periodically (column 3, lines 18-26). It is commonly known by one having ordinary skill in the art at the time of the invention that the output torque will vary along with the output current. The prior art elements of the torque varying is commonly well known in the area of motor control as the torque is directly proportional to the current, and therefore yield predictable results.

With respect to claim 7, Hirono discloses decreasing an amplitude of an output torque variation of the motor, and controlling at least one of voltage and current of the inverter suppress rotational speed variations of the motor (column 3, lines 15-55) so as not exceed a current detection extent.

With respect to claim 7, Ochiai et al discloses decreasing an amplitude of an output torque (column 3, lines 18-26) variation of the motor (fig. 1, 2), and controlling at least one of voltage and current of the inverter (fig. 1, 7) inverter suppress rotational speed variations of the motor so as not exceed a current detection extent (column 2, lines 5-12). Hirono does not specifically speak of the torque values. Ochiai teaches varying motor output torque periodically (column 3, lines 18-26). It is commonly known by one having ordinary skill in the art at the time of the invention that the output torque will vary along with the output current. The prior art elements of the torque varying is

commonly well known in the area of motor control as the torque is directly proportional to the current, and therefore yield predictable results.

With respect to claim 9, Hirono et al discloses detecting or estimating load (column 2, lines 1-2), and suppressing rotational speed variations of the motor except when the load is smaller than a predetermined value (column 5, lines 20-27).

Hirono does not specifically speak of the torque values. Ochiai teaches varying motor output torque periodically (column 3, lines 18-26). It is commonly known by one having ordinary skill in the art at the time of the invention that the output torque will vary along with the output current. The prior art elements of the torque varying is commonly well known in the area of motor control as the torque is directly proportional to the current, and therefore yield predictable results.

With respect to claim 10, Hirono et al does not teach wherein the load is detected or estimated by means of an average current. The examiner takes official notice that detecting an average current in place of an instantaneous current is know in the art. It would have been obvious to one of ordinary skill in the art at the time of the invention to provide a circuit where the load is detected or estimated by means of an average current, thereby making the value more stable and not as prone to disturbances or fluctuations to produce a more stable system.

With respect to claim 11, Hirono et al disclose a converter is provided which can control a direct current voltage supplied (fig. 1, 3) to the inverter (fig. 1, 2). Hirono et al does not teach the inverter varying output torque. Hirono does not specifically speak of the torque values.

With respect to claim 11, Ochiai et al discloses wherein the inverter varies output torque (column 3, lines 18-26). It is commonly known by one having ordinary skill in the art at the time of the invention that the output torque will vary along with the output current.

With respect to claim 12, Ochiai et al discloses wherein the direct current voltage supplied (fig. 1, voltage supplied to 7) to the inverter (fig. 1, 7) is controlled based upon the detection value (column 5, lines 13-19). It is commonly known by one having ordinary skill in the art at the time of the invention that the output torque will vary along with the output current.

With respect to claim 14, Hirono et al discloses a detection section (fig. 1, 29) at least one of an output voltage value and a command value of the inverter suppress rotational speed variations of the motor (column 3, lines 15-55) as a detection value (column 1, lines 40-52), and an inverter control section (fig. 1, 24) for controlling at least one of voltage and current of the inverter based upon the detection value so that one of the output voltage value and the command value of the inverter does not exceed a predetermined value (column 1, lines 57-58), taking precedence over suppression of rotational speed variations (fig. 2, s6).

Hirono does not specifically speak of the torque values. Ochiai teaches varying motor output torque periodically (column 3, lines 18-26). It is commonly known by one having ordinary skill in the art at the time of the invention that the output torque will vary along with the output current. The prior art elements of the torque varying is commonly

well known in the area of motor control as the torque is directly proportional to the current, and therefore yield predictable results.

With respect to claim 15, Hirono et al discloses the detection value is a peak value (column 8, line 36) of one of the output voltage value of the inverter and the command value.

With respect to claim 16, Hirono discloses a section decreasing an amplitude of an output torque variation of the motor, and an inverter control section for controlling at least one of voltage and current of the inverter suppress rotational speed variations of the motor (column 3, lines 15-55) so that one of output voltage value and the command value of the inverter does not exceed a predetermined value.

With respect to claim 16, Ochiai et al discloses a section (fig. 1, 5) decreasing an amplitude of an output torque (column 3, lines 18-26) variation of the motor (fig. 1, 2), and an inverter control section (fig. 1, 5) for controlling at least one of voltage and current of the inverter (fig. 1, 7) so that one of output voltage value and the command value of the inverter inverter suppress rotational speed variations of the motor does not exceed a predetermined value (column 2, lines 5-12). Hirono et al does not teach the inverter varying output torque. Hirono does not specifically speak of the torque values. Ochiai teaches varying motor output torque periodically (column 3, lines 18-26). It is commonly known by one having ordinary skill in the art at the time of the invention that the output torque will vary along with the output current. The prior art elements of the

torque varying is commonly well known in the area of motor control as the torque is directly proportional to the current, and therefore yield predictable results.

With respect to claim 19, Hirono discloses a section for decreasing an amplitude of an output torque variation of the motor, and inverter control system for controlling at least one of voltage and current of the inverter inverter suppress rotational speed variations of the motor (column 3, lines 15-55) so as not exceed a current detection extent.

With respect to claim 19, Ochiai et al discloses a section (fig. 1, 5) for decreasing an amplitude of an output torque (column 3, lines 18-26) variation of the motor (fig. 1, 2), and inverter control system for controlling at least one of voltage and current of the inverter (fig. 1, 7) inverter suppress rotational speed variations of the motor so as not exceed a current detection extent (column 2, lines 5-12). Hirono does not specifically speak of the torque values. Ochiai teaches varying motor output torque periodically (column 3, lines 18-26). It is commonly known by one having ordinary skill in the art at the time of the invention that the output torque will vary along with the output current. The prior art elements of the torque varying is commonly well known in the area of motor control as the torque is directly proportional to the current, and therefore yield predictable results.

With respect to claim 21, Hirono et al discloses converting the direct current power source (fig. 1,3) into a converted alternating current power source using the inverter (fig. 1,2); a load detection section (fig. 1, 26) for detecting or estimating load (column 2, lines 1-2), and an inverter control section (fig. 1, 24) suppressing rotational

speed variations of the motor except when the load is smaller than a predetermined value (column 5, lines 20-27).

Hirono does not specifically speak of the torque values. Ochiai teaches varying motor output torque periodically (column 3, lines 18-26). It is commonly known by one having ordinary skill in the art at the time of the invention that the output torque will vary along with the output current. The prior art elements of the torque varying is commonly well known in the area of motor control as the torque is directly proportional to the current, and therefore yield predictable results.

With respect to claim 22, Hirono et al does not teach wherein the load is detected or estimated by means of an average current. The examiner takes official notice that detecting an average current in place of an instantaneous current is known in the art. It would have been obvious to one of ordinary skill in the art at the time of the invention to provide a circuit where the load is detected or estimated by means of an average current, thereby making the value more stable and not as prone to disturbances or fluctuations to produce a more stable system, applying a known technique to yield predictable results.

With respect to claim 23, Hirono et al discloses converting the direct current power source (fig. 1,3) into a converted alternating current power source using the inverter (fig. 1,2); a detection section (fig. 1, 29) for detecting at least one of an output voltage value and a command value of the inverter as a detection value (column 1, lines 50-52), and an inverter control section (fig. 1, 24) for controlling at least one of voltage and current of the inverter suppress rotational speed variations of the motor (column 3,

lines 15-55) based upon the current detection value so that one of the output voltage value and the command value of the inverter does not exceed a predetermined value (column 1, lines 57-58).

Hirono does not specifically speak of the torque values. Ochiai teaches varying motor output torque periodically (column 3, lines 18-26). It is commonly known by one having ordinary skill in the art at the time of the invention that the output torque will vary along with the output current. The prior art elements of the torque varying is commonly well known in the area of motor control as the torque is directly proportional to the current, and therefore yield predictable results.

With respect to claim 25 and 26, Hirono does not specifically speak of torque values.

With respect to claim 25, Ochiai et al the controlling at least one of voltage and current of the inverter (column 2, lines 1-20) is accompanied with a decrease of an amplitude (column 3, lines 18-26) of an output torque variation of the motor.

With respect to claim 26, Ochiai et al the inverter control section for controlling at least one of the voltage and current of said inverter (column 2, lines 1-20) is accompanied with a decrease of an amplitude (column 3, lines 18-26) of an output torque variation of the motor.

Allowable Subject Matter

Claims 8, 20, 27, and 28 are allowed. With respect to claims 8, 20, 27 and 28, the Prior Art does not teach an inverter control section for controlling at least one of voltage and current of the inverter based upon the current detection value so as not to exceed a current detection extent, for driving the motor, the current detection section indirectly detecting the output current of the inverter by detecting the input current of the inverter, and wherein the inverter control section controls at least one of voltage and current of the inverter so that a negative peak value of the input current of the inverter does not exceed a predetermined value.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Erick Glass whose telephone number is (571)272-8395. The examiner can normally be reached on 9-5 M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Walter Benson can be reached on 571-272-2227. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/EG/

/Walter Benson/
Supervisory Patent Examiner, Art Unit 2837